OIML TC9/SC1, Revision R76

Synopsis of Comments on the 2nd Committee Draft (21 October 2005) and Secretariat's Responses

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			The abbreviations used in the following mean: P+ = Proposal accepted and considered in the 3CD (editorial, or correction, or improvement of 2CD without changing the content) P– = Proposal that could not be accepted V = Proposal that could not be considered since a great majority of TC9/SC1 members voted for closing the technical discussions (see Secretariat's letter from 21 October 2005)
General	CH	We appreciate a lot the huge work performed to revise this recommendation. The CD2 is now comprehensive. We also appreciate the modular and family concepts. Although it contains a lot of useful information we think that the actual content of the document (examples, abbreviations and symbols, terminology, forms, checklists...) exceeds the context and the scope of the part 1 of an OIML recommendation. We thank you again for having done this great job and expect general improvements and simplifications of the content to approve it at the next step.	See our explanations under the "explanatory note" (page 5 of 3CD)
General	IR	Add an extra OIML Certificate for modules as "definition of titles" is very helpful specially when we want to decide about importing modules.	To be decided by BIML, see 3rd CD page 4 point 2 and 3
General	IR	It is more suitable to use "evaluation report", because in many parts we just verify similarity and conformity according to the rules of this document.	To be decided by BIML, see 3rd CD page 4 point 4
General	IR	Adding one or more format of examples are very useful specially for countries that are only users of the certificates.	We consider the contents of certificates / evaluation reports described sufficiently; but will be finally decided by BIML (see above)
General	NL	Please reconsider the expression "power supply" throughout the document as this can be confusing (this expression has not been defined). And during the meeting of OIML TC5/SC1 preparing the new OIML D 11 this	P+ we have carefully checked and adapted the respective expressions to D11 No 3.21 and 3.22, where confusion was possible.

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		has extensively been discussed, as the problem is that "power supply" has 2 different meanings: * The **power converter (power supply device):** Sub-assembly converting the voltage from the mains power to a voltage suitable for other sub-assemblies. [OIML D 11, 3.22] * **The Power "source"**: Mains power, battery, etc. (see also definition 3.21 in OIML D 11) For consistency throughout OIML Recommendations and in order to prevent confusion, we insist on the application of terminology according to OIML D 11.	
General	NL	There are a few terms defined, but not "used" in the document. We suggest to delete these. (Refer OIML Directives for the technical Work, Part 2, last paragraph of B.11.1: *"Only the concepts that are used in the Recommendation shall be defined, with the exception of any additional concepts and terms judged necessary for understanding these definitions."*	P+ has been considered, see also T.8 and T.9
General	NL	Application of the same symbol for 2 or more different meanings should be avoided: A, B, C, I, k, L, N, P, T, U.	P- symbols are defined in other OIML documents or international standards. In addition we point to the fact that confusion is not possible because they are used in different chapters..
T 1.1	AT	Delete extra space : Note :	P+
T.2.7.4.2	NL	Change " *... is capable of displaying or printing ...*" to "*... is capable of displaying, printing,* ***or transmitting*** *...*" Reason: Otherwise the tare-weighing device is degraded to a Tare balancing device when the printer is disconnected.	P- the main characteristics of a tare weighing device is that the tare value is stored so that it can be displayed or printed on demand.
T.2.8.1, to T.2.8.7	NL	Replace "*Legally relevant*" with "***Metrologically*** *relevant*" or change T.2.9 into "*Legally relevant*" Also change other occurrences accordingly.	P- legally relevant is defined especially with regard to software (see new OIML document D-SW, Working Draft 2006), whereas metrologically relevant is a more general term and is used in the sense of T.2.9 (see comment AU on 1st CD, Terminology)
T.2.8.1	NL	1st line: Delete "*type-specific*" because device-specific parameters are also legally (metrologically) relevant parameters	P+ "*type-specific and device-specific parameters*"
T.2.9	AU	The definition of 'metrologically relevant' is important, however we suggest	P+

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		that 'influences' be replaced with 'influences or has potential to influence'. Our reason for this is that we consider for example that an alteration of software relating to sealing, or of software containing weighing routines is 'metrologically relevant' whether or not there are actual influences on the primary indications.	
T.4.1	NL	The letter 'k' for the sensitivity is not used in the document. Please change formula to "*sensitivity = Δl/ΔM*" This avoids confusion with other uses of the letter 'k'. (In T.9 too we see that "k" has 2 meanings.)	P+
T.5.3.1	AU	See our comments on 4.71. below for additional comments on this issue. We do not agree with the introduction of 'predetermined' into the preset tare terminology. The current terminology for preset tare (effectively if it is keyed in, recalled from data storage, or inserted via an interface, it is preset tare), is simple and clear.	P+ see T.5.3.1 US
T.5.3.1	US	As a result of the U.S. comments on 4.7.1 to amend 4.14.4.3., the Secretariat proposed amending the language in T.5.3.1 to help solve our misunderstanding of the term 'Preset Tare'. I accept the response not to amend 4.14.4.3. We fully agree and understand that a tare value introduced into a weighing transaction through a keyboard for one or more transactions, and tare values used for multiple transactions are classified as "preset tare". I must apologize, since I am still not sure that the changes to T.5.3.1 answers the question identified in our comment. The question is, does a "tare weighing" value stored in memory and recalled for only one weighing still considered a "preset tare" if the tare has automatically been cleared after the gross and net weight determination? If the answer to the question is yes, do the following changes to T.5.3.1 help clarify the language? T.5.3.1 Preset tare value (PT) Numerical value, representing a weight, that is introduced into the instrument and is intended to be applied to other weighings without determining individual tares. ~~It is a predetermined tare value that is used for **one** or several weighings~~.	P+

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		"Introduced" includes procedures such as: keying in, recalling from a data storage, or inserting via an interface. ~~"Predetermined" means that a tare value is determined once and is applied to other **weighings** without determining the individual tare values.~~	
T.8, T.9	NL	There are a few terms defined, but not "used" in the document. We suggest to delete these. (Refer OIML Directives for the technical Work, Part 2, last paragraph of B.11.1: *"Only the concepts that are used in the Recommendation shall be defined, with the exception of any additional concepts and terms judged necessary for understanding these definitions."*	P+ see "General"
T.9	CH	The reference for the symbol M should be Figure 3.	P+
T.9	NL	Application of the same symbol for 2 or more different meanings should be avoided: A, B, C, I, k, L, N, P, T, U. The explanation for ADC can be improved, see comment on 5.5.2.1 The letter 'I' is not used as abbreviation for "intrinsic error" in T.5.5.2. Please remove this line.	P- see response under "General" See response under 5.5.2.1 P+
3.2	JP	According to the exemption, the minimum capacity is reduced to 5e for grading instruments. Since there is not enough explanation for this exemption, general scales should also be applicable.	V
3.3.3	IR	The example after Table 4 : Since we determine "mpe" in respect of Table 6, it will be more convenience to have this example after the whole relevant text (i.e. after Table 6).It is recommended to transfer it before clause 3.5.3 (Basic rules concerning , Page 33).	P- The example belongs to multi-interval instruments, therefore it should be kept where it is. For the mpe mentioned there is a reference to chapter 3.5.1.
3.5.3.2	PL	We propose to clarify when it is necessary to eliminate of rounding error "At type approval and initial verification tests" the rounding error included in any digital indication shall be eliminated…". In our opinion it's possible in service or at subsequent verification use simplified method with 0,5 e standard weights.	P- With such a simplified method the changeover point could not be determined precisely enough (for e.g. the accuracy of zero-setting test)
3.6.2.1	NL	In this clause is not described where to apply test loads in the case the number of supports equals to 4 or less. Suggest adding at the end: *The load receptor*	P- this is a detail of the tests, not a "metrological requirement" (title of clause 3). The explanation

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		shall be divided in 4 segments. The load shall be applied to the centre of each segment.	of the test procedure can be found in A.4.7
3.7.1	UK	'Weights' refers to another OIML Recommendation R111, but this document has been revised and (amongst other things) specifies different mpes to the 'old' version of R111. Therefore the UK suggests that it should be amended to read either: "shall principally meet the metrological requirements of OIML R111 Edition 2004 (e)" OR "shall principally meet the metrological requirements of the current edition of OIML R111"	This is a point or decision of a general nature, therefore the BIML should decide, see new point 7, page 4
3.7.3	PL	There can be problems at type evaluation of tanks by the new requirements at 3.7.3	Not clear for us because the requirements changed only slightly and the test procedures did not change at all compared to R76 (1992)
3.8.2.1 and 3.8.2.2	NL	For reasons of practical testing we propose to increase the minimum weight with a factor 10. So replace 1 mg by 10 mg and replace 5 mg by 50 mg.	V
3.9.1.1	AU	We do not agree with the change to the note in item (a) regarding a level bubble below the load receptor. The new wording would permit the a level bubble to be located below a load receptor or inside an instrument, requiring tools to access it, and with no notice that it exists – the chance that it would ever be used would be minimal. Please revert to the note of 1CD Note: If technical reasons allow the level indicator to be fixed only in a "hidden" place (e.g. below the load receptor) this can be accepted if the level indicator is easily accessible to the user without tools, and if there is a legible notice provided on the instrument in a clearly visible place that points the user to the level indicator. We have some sympathy with the Netherlands comment regarding this (what are really design choices are often called 'technical reasons'), but we feel that the note makes a reasonable compromise.	P+ but with slightly modified wording
3.9.1.1	NL	The 1st sentence gives a detail of the tests, not a "metrological requirement" (title of clause 3). As we reported at earlier occasions, it is our opinion that such a test detail	P- explanation is useful in order to understand the following text

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		should be moved to clause 8 (Metrological controls). This is also the case for a few other sub clauses; please refer to our earlier remarks. We regret that this suggestion has not (yet) been adapted.	
3.9.1.1 a.	NL	The text of the 1st sentence could be improved by adding a comma and replacing "*is*" by *"shall be*": *"If the instrument is fitted with a levelling device and a level indicator, the limiting value of tilting shall be defined by a marking (e.g. a ring) on the level indicator which shows that the maximum permissible tilt has been exceeded when the bubble is displaced from a central position and the edge touches the marking. The limiting value of the level indicator shall be obvious, so that tilting is easily noticed."* But there is another problem: this technical solution (although the most obvious one) should preferably avoided in legislation. Therefore, we suggest to condense the text as follows: *If the instrument is fitted with a leveling device and a level indicator, the limiting value of tilting shall be unambiguously indicated. The level indicator shall be fixed firmly on the instrument in a place clearly visible to the user and representative for the tilt sensitive part.* We are still against the Note "If technical … " We believe the level indicator is there to inform the user and customer about the proper operating condition of the weighing instrument. Hiding the level indicator makes it highly unlikely that the user or customer notices an improper installation. See also our previous comment. So please delete the Note.	P- V P- there may be special cases where the level indicator cannot be mounted in a clearly visible place, e.g. checkout weighing instruments which are installed firmly near a conveyor belt However we think that by re-introducing and improving the note of the 1st CD (see 3.9.1.1 AU) your concerns are appropriately considered.
3.9.2.1 3.9.2.2 3.9.2.3	CH	Editorial: use the symbol ° instead of ^{0} for degree C	P+ (changed throughout the document)
3.9.5	JP	A note mentioned in 3.9.5 should be shown as the main body, not just as note because it is really important to secure good performance of scales.	V
3.10	NL	3.10 gives tests, not "metrological requirements" (title of clause 3). As we reported at earlier occasions, it is our opinion that 3.10 should be moved	V please refer to our response to your comment to the 1st CD (under "General")

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		to clause 8 (Metrological controls). This is also the case for a few other sub clauses; please refer to our earlier remarks. We regret that this suggestion has not (yet) been adapted.	
3.10.4.2, general and last hyphen	NL	<u>General:</u> Firstly, 3.10.4.2 covers 2 different aspects and should therefore be split into 2 sub-clauses: - the choice of which variants of a family to be tested and - Which (not tested) variants are also acceptable. This 2nd category being in particular important if a manufacturer decides later (after the tests to extend the range. <u>Last hyphen:</u> Although we are not in favour for the factor 5 and we would rather prefer a factor 2, we realize that this factor 5 complies with the approved R 60. In our opinion, the added last sentence is clearer if given in the form of a simple formula. Taken into account these considerations, we propose to replace 3.10.4.2 by the following text (and adjust the numbers of the following sub-clauses accordingly): **3.10.4.2 Variants within a family to be tested** For any family, at least the variant with the highest number of verification scale intervals (n) and the variant with the smallest verification scale interval (e) shall be selected as EUTs. Further EUTs may be required according to 3.10.4.5. If a variant has both characteristics, one EUT may be sufficient. **3.10.4.3 Variants acceptable without testing** Variants other than the EUTs can be accepted without testing, if - for comparable metrological characteristics - <u>one</u> of the following provisions are fulfilled: - Their capacities (Max) are in between two tested capacities. The ratio between the tested capacities shall not exceed 10.	V P+ because this is an editorial improvement without changing the content

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		- Variants other than the EUTs can be accepted without testing, if - for comparable metrological characteristics - each of the following conditions a), b), and c) are fulfilled: a) $n \leq n_{test}$ b) $e \geq e_{test}$ c) $Max \leq 5 \cdot Max_{test} \cdot (n_{test} / n)$ Note: Max_{test}, n_{test}, and e_{test} are the characteristics of the tested EUT (The number 5 in this formula is the "5 times above" from the present text and we would prefer to replace this by 2.)	V
3.10.4.5	IR	In "Remarks to the selecting", it is better to specify variants and their numbers with another font (or show it in any other suitable way) and also use a small space between to parts.	P+ variants are presented in italics
3.10.4.5	NL	3rd hyphen: Change " *only for indicators when connecting strain gauge load cells*" to " *only when using analogue strain gauge load cells*". This is also valid for complete instruments and other modules. Add above Table 9 *" - In principle a variant with Max 75 kg can be added in the certificate"* Table 9: Please explain where the maximum values of "e" come from.	P+ P- because not included in Table 8. In case of Max 75 kg *e* would have to be changed to 50 g. The maximum values of "e" result from the maximum capacity (60 kg) divided by the minimum n for class III (500), see Table 3 in 3.2
4	AU	The changes to this clause are an improvement, however we do still feel that the concept of "proper handling by unskilled users" is problematic. Is it really expected that an unskilled user, without training in proper handling, should be able to use the instrument without incorrect or ambiguous primary indications occurring? If so we feel that a very large percentage of currently approved instruments (with many complex features, tares, preset tares, PLUs, non-weighed articles, set-points, multiple platforms, industrial features etc) should clearly not be approved.	V

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		Or is it intended that manufacturers simply be able to write the operators manual of the instrument in such a way that any operation which might give rise to incorrect or ambiguous results is defined as 'abnormal use or improper handling' (we do not support this approach).	
4	ZA	1st Par does not make sense. We suggest": "The following requirements relate to the design and the construction of instruments, and are intended to ensure that instruments and other primary indications, give correct and unambiguous weighing results ~~and other primary indications~~, under normal conditions of use and proper handling by unskilled users. They are not intended to prescribe solutions, but to define appropriate functioning of the instrument."	P- this seems to be a misunderstanding. Primary indications must not be mixed up with primary displays, see T.2.2.6 The addition was made to emphasize that also e.g. the price indication is a primary indication that has to be correct and unambiguous.
4.1.2.6	UK	A very important feature of aircraft scales during the examination process is the user setting of gravity zones. This is a specific requirement for aircraft scales. These portable scales are moved between various weighing locations; an aircraft owner may need to send a set of scales to a remote location to reweigh an aircraft after certain operations before the aircraft can be re-certified for flight. These scales combine very high capacity (typically 30 tons) and small size (typically a meter square) making it very difficult to recalibrate. The usual solution is to calibrate the scales using specialized fixtures and adjust the gravity compensation as the scales are relocated. As current written, 4.1.2.6 of the 2CD of R76-1 blocks this vital feature. There needs to be some language recognizing that "user settable" gravity compensation is a permitted special feature of aircraft scales. There may be special requirements regarding marking and printout to support this feature. Our products display the entered altitude and latitude during the start-up process. The printout is marked with the altitude and latitude setting used during the weighting process.	P- "user settable" during operation of the instrument is absolutely in contradiction to the basic properties of legally controlled instruments (see 4.1.2.1 to 4.1.2.4). In addition we refer to the gravity provisions under 8.3
4.2.2.1	AU	We believe that other weight values (T.5.3 – i.e. PT, calculated net, calculated total), as well as weighing results (T.5.2 – G, N, T) should contain their units. Hence we suggest replacing "Weighing results and…" with "Weighing results	V

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		(T.5.2) and other weight values (T.5.3) …". The same change should apply in the third paragraph (or possibly just revert to "The scale interval shall be in the form…").	
4.2.2.2	DE	In Example 1 one possibility of indication is missing: "Allowed indications xxx.050 kg xxx.1 kg"	P+
4.2.2.2	IR	In clause 4.2.2.2, example 1, for max_i=150k, column "Allowed indication" we have two similar XXX.05 kg in both lines which should be correct.	P- The table is correct. It shows how the weighing results may be presented when the verification scale interval changes.
4.2.3	AU	We have read the comments of others regarding the new requirement for no display below zero (& exceptions to that). We do not believe that this additional requirement is necessary, but have no strong objection to it. However in the wording "a temporary indication of negative numbers…" the meaning of temporary is not clear (5 s?). We believe 'temporary' should be removed if this requirement is retained.	P+ We hope with the new wording the majority of TC9/SC1 members can live
4.2.3 Note	NL	Please delete "temporary". Otherwise a time limit should be defined.	P+ see 4.2.3 AU
4.2.4	NL	An "approximate displaying device" is a secondary indication. According to T.1.3 there should be no requirements for a secondary indication in this Recommendation.	P- This requirement is important, otherwise the approximate indicating device could have the same Max and e as the primary indication without being subject to requirements of this Recommendation.
4.4.4	AU	We appreciate the changes which have been made, however as mentioned in 4.2.2.1 above, we believe that weight values (T.5.3 – i.e. PT, calculated net, calculated total), as well as weighing results (T.5.2 – G, N, T) should contain their units (unless only displayed temporarily). Not including units can only lead to ambiguity which should (according to 4 above), result in non-approval. Hence we suggest replacing "Weighing results and…" with "Weighing results (T.5.2) and other weight values (T.5.3) …".	See 4.2.2.1
4.4.4	NL	To make the requirement more clear change the sentence "*weight values that are not weighing results (T.5.2.1 through T.5.2.3) shall be clearly identified, or they may be displayed only temporarily on manual command and shall not be printed*." to	P+ however with slightly modified wording

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		"*weight values that are not weighing results (T.5.2.1 through T.5.2.3) shall be clearly identified and may be printed, or they may be displayed only temporarily on manual command and shall not be printed.*"	
4.5.1	NL	Please delete the sentence " *This does not affect ...*". We have never found this to be a problem for class IIII scales. There are several alternative solutions possible (for example combined zero-tare-setting device). Furthermore, it is very confusing to have different requirements depending on the application of the weighing instrument (commercial versus .....). Should the application be mentioned on the instrument?, and on the type approval certificate? and in the OIML certificate? What if an approved and verified instrument is sold and used for another application if such restriction is not clearly indicated on the instrument ?	V
4.5.2	CN	"After zero setting the effect of zero deviation on the result of the weighing shall be not more than **0.25 e**." **should be changed into:** "After zero setting the effect of zero deviation on the result of the weighing shall be not more than **±0.25 e**."	P+
4.5.5	CN	"An instrument with digital indication shall have a device that displays a special signal when the deviation from zero is not more than **0.25 e**." **should be changed into:** "An instrument with digital indication shall have a device that displays a special signal when the deviation from zero is not more than **±0.25 e**."	P+
4.6.5	AU	Although in the terminology 'T' appears in brackets against 'Tare Value', it is not stated anywhere whether 'T' is an acceptable symbol for TARE, except in the Acceptable solution of 4.6.5, which refers only to a mechanical tare adding device, and in 4.6.11 which is only regarding printing. (Note that N appears against Net value in the terminology, but is not an acceptable symbol for it in 4.6.5) Nevertheless it is evident that other authorities have been accepting "T" as a symbol for "TARE" in other situations (e.g. on a display). If this is intended to be acceptable it should be explicitly stated, for example by including an additional note in 4.6.5 such as "Note: where the tare value is displayed it may be designated by the symbol 'T' or by complete words in an official language of the country where the instrument is used.".	P- 4.6.5 requires the "Visibility of operation" of the tare device and the sign "NET" is the designation of the displayed net value. If the tare value is also displayed, the sign "T" should be allowed as designation of the tare value, like in 4.6.11. P- for two reasons: 1) 4.6.5 deals with the visibility of operation and not with the designation of a displayed tare value 2) Provisions in 4.6.11 for printing seem sufficient
4.6.11	NL	7th par.:	

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		Because of our comments on 4.6.12 we propose to change "*When gross, net and tare values are printed together, one of these values may be calculated …*" to "*When gross, net and tare values are printed together, the gross value shall be calculated …*"	P-
4.6.12	US	If I understand the response to the U.S. comments on 4.6.12 correctly, there is the possibility of a tare or preset tare value that is near zero being indicated as zero due to rounding on the display and the printed information.	We hope that the matter is clarified by the additional wording put into 4.6.7. Of course, rounding the tare value to zero is possible if it is less than 0.5 * e_i of the actual range i.
4.6.12.1 – 4.6.12.6	NL	The examples show clearly that in a number of cases it is not clear for the user / customer why there is a difference between the display and the printout. We would prefer the WYSIWIG (What You See Is What You Get) method. That means that the displayed values are also the printed values. As a consequence the gross value should be calculated in all examples. To make the examples more clear we would prefer simpler examples. (If the secretariat agrees we can provide some examples.)	V We would like to mention once more that if the 3 loads (tare, gross and net) are weighed individually, it may happen that the calculated difference (gross minus tare) differs from the (weighed) net value, although the 3 weighing results are correct within the mpe's.
4.6.12.2	NL	Replace *" After tare-balancing*," with "*After tare-weighing*,"	P+
4.6.12.3	NL	Replace *" After tare-balancing*," with "*After tare-weighing*,"	P+
4.6.12.4	NL	Replace *" After tare-balancing*," with "*After tare-weighing*,"	P+
4.6.12.5	NL	In principle the conclusion that with e = 2 g the value of 3 g can be rounded to 2 g or 4 g is correct. However could we not agree in this Recommendation that 1, 3, … g always will be rounded up (because with e = 1 g the value of 0,5 g is always rounded up).	V
4.6.12.5	ZA	We fail to see why 4.6.12.5 does not necessitate the use of a "C" on the possible printout. When you compare 4.6.12.5 with 4.6.12.6 (which requires a "C" on the printout) the measuring results are both calculated values. We suggest including a "C" on all possible printouts where calculated values in Par 4.6.12 are determined.	P- in example 4.6.12.5 there is a calculated net value (see T.5.3.2) and in 4.6.12.6 there is a calculated weight value (see T.5.3.3). According to 4.6.11, last paragraph, the "C" is required only for calculated weight values.
4.7.1	AU	(Also T.5.3.1 Preset Tare) Differing interpretations of this requirement are a frequent problem. We do not agree with the introduction of 'predetermined' into the preset tare	

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		terminology. Generally an instrument does not know whether a value stored is intended for the short term (temporary use – presumably tare) or longer term (predetermined – presumably pre-set tare). It may be possible to develop requirements regarding how long it is before a tare becomes a pre-set tare, or criteria for when the tare is considered to be temporary – but why complicate the issue? The current terminology for pre-set tare (effectively if it is keyed in, recalled from data storage, or inserted via an interface it is preset tare), is simple and clear. The current wording in 4.7.1 which says "Regardless of how a preset tare value is introduced into the device…" indicates very clearly that even if entered into storage via a tare weighing device, the value is a pre-set tare. However there is a discrepancy between the rounding of pre-set tare required in R76 and the requirements of R51. We feel that allowing unrounded pre-set tare values to be used in R76 would overcome many differences in interpretation and would also remove the difference between R51 and R76. (We believe the response of the secretariat to the comment of France regarding 4.7.1 is not correct – the documents are not coherent, as R76 requires rounding of preset tare, whereas R51 does not).	See T.5.3.1 AU P- this has been carefully checked against R51, latest draft, and there is coherence.
4.7.1	NL	To make the requirement for multi-interval in line with the preceding requirement, change "*For a multi-interval instrument, the preset tare value shall be entered with the smallest verification scale interval …*" to "*For a multi-interval instrument, the preset tare value shall be rounded to the smallest verification scale interval …*"	P+
4.7.3	AU	The exception regarding instruments with combined zero-setting and tare balancing devices is perplexing. The instrument must have a tare balancing and a pre-set tare device for this exception to apply (as well as zero setting). All these devices without an indication of operation seems certain to facilitate fraud.	This is obviously a misunderstanding. In the case of instruments with a combined semi-automatic zero-setting device and a semi-automatic tare-balancing device operated by the same key of course 4.6.5 applies.To avoid that misunderstanding we have re-written 4.7.3 without changing the original meaning.
4.11.5	AT	Second listing hyphen "…weighing modes inoperative are…" instead of "…weighing mode inoperative are…"	P+

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4.11.5	NL	This clause seems to be only valid for 4.11 "Devices for selecting …" From the wording one could understand that this clause is valid for all instruments. Please explain.	P+ 4.11.5 moved to new chapter 4.20.
4.13	BR	Verify the possibility to eliminate the limit of maximum capacity of 100 kg. Suggestion for text: The following requirements apply to an instrument of class II, III or IIII designed to be used for direct sales to the public.	V
4.13	NL	Why are direct sales limited to 100 kg? Suggest deleting the limit of 100 kg.	V
4.13.2	NL	Once upon a time, we had an long formal (legal) discussion about a particular weighing instrument about the "definition" of a "*tool*": - a screwdriver is clearly a tool, - but what about a nail or a paperclip ? To avoid such unnecessary discussions, we suggest to replace the word *"tool*" by ""*tool or other mechanical device not being an integral part of the weighing instrument*"	P- Not considered to be a serious problem
4.13.6	AU	In the absence of more well defined requirements regarding display readability it will be necessary to rely heavily on the subjective clause 4.2.1. This is perhaps understandable in view of the need for consensus, but regrettable as it will surely result in unsatisfactory outcomes for manufacturers.	P+ See new reference in 4.13
4.14.3	NL	Very high-priced goods (like seeds, diamonds) are sold by g, mg or ct. Please add additional unit price possibilities like /mg, /g and /ct, or remove the restriction.	V
4.14.4.2	BR	To show examples for "appropriate reference" **Suggestion for text** "Acceptable technical solution for appropriately reference a separate total label or ticket to the commodities that have been totalized in it : Each individual commodity label or ticket totalized shall be identified with the same identity number as the total label or ticket. The identity number shall be composed of a number referencing the instrument in which it was printed and a number generated by an event counter, that is increments itself each time a total label or ticket is printed. The event counter part of the number shall be at least 4 digits long, as not to	V

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		repeat itself before 10.000 operations are done. The total label or ticket shall also state clearly the quantity of individual commodities that is totalities".	
4.14.4.3	BR	We suggest criteria to establish the maximum permissible counting error. Suggestion for text "If the instrument allows minimum average weight per item of e divided by 10, the maximum counting error shall be equal to the maximum permissible weighting error multiplied by 10".	V
5.3.1, last sentence	NL	Because basically a screen display consists of pixels so this too is a "segmented display" and matrix displays can exist of 5x7 dot displays we do not think the examples are correct. We would prefer the following wording: *"This is not applicable for displays, on which failures become evident, for example a display where failure of 1 or 2 elements do not lead to a wrong result."*	V
5.5	NL	Delete preliminary note in final draft.	P- has been introduced on demand of another TC9/SC1 member
5.5.2.1	NL	Table 11: Change the explanation for ADC "*Relevant analogue component(s) including Analogue/Digital Converter*" to "*Analogue to Digital Converter including relevant components"*	P- the ADC is one of the relevant components
5.5.2.2 a.	NL	2nd par, last sentence : As there are more common software tools, we propose to include hex editors additional to text editors. 3rd par: The wording depending on the length of the machine code is not clear. What is depending on the length? Also we question if the use of a hidden polynomial is necessary.	V P+ "depending on the length of the machine code" deleted P- just an acceptable solution
5.5.3.3 b.	NL	Also here we question if the use of a hidden polynomial is necessary.	See 5.5.2.2.a NL
6.1	AT	Delete extra comma: (I) or, (II)	P+
6.2.2.4	AT	"…a displaying component …" instead of "…an displaying component …"	P+
7.1.4	IR	In clause 7.1.4, part " The Marking", it is better to write: e=… d=… if d≠e	P+

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8.2.1.2, last sentence	NL	Add at the end of the sentence " ***or prescribed by national legislation.***" In some countries the documentation has to be given to an inspection or verification body.	P+ but added under 8.2.1
8.2.2	IR	It is very important to keep the "yellow part" specially for users don't have enough consideration to other relevant documents.	Will be revised by the BIML according to the developments of the OIML certificate system and MAA (see page 4 of 3CD)
A.4.8.1 and A.4.8.2	NL	See comment on 3.8.2.1 and 3.8.2.2	See 3.8.2.1 and 3.8.2.2
A.5.1	NL	The wording " In the text that follows, … are designated class II " has become superfluous, please delete.	P+
A.5.2	CN	**Add the word "after" to the title** **"Warm-up time test (5.3.5)"should be changed into"Time test after warm-up(5.3.5)"** ***Reasons:*** "5.3.5 During the warm-up time of an electronic instrument there shall be no indication ---", warm-up time test should not be set to zero and then the error at zero should not be determined.	V
A 5.3.1	JP	The standard of static temperature should be in reference to D11 (2004).	V See our detailed response at the end of this document
A.5.3.1, last sentence	NL	This specification is not in line with D11 or the relevant IEC standard. Also should this not be valid starting from 5 °C.	V See our detailed response at the end of this document
B Note	NL	Such a "dynamic reference" is unacceptable for a document that is meant to become legislation. Legislation has to specify versions of standards.	This is a decision of general nature, therefore the BIML should decide, see new point 7, page 4 (3CD)
B.3.3	NL	The first paragraph can be deleted, because the typical situations of installation are normally not known during type-approval. Also the standard describing the test describes many more considerations for determining the testing on certain cables.	According to the vote (Question B.2 after 1st CD) this first paragraph has been kept.
B.3.5	AU	We do not agree with the increase to 10 V/m for all instruments. The other possible response to the CECIP comments would be to require instruments to be marked according to their tested severity level, and leave it to national regulation to determine acceptability in different locations (residential / commercial / industrial etc). We believe this is the preferable solution.	V see our response to B.3.5 NL
B.3.5	NL	The sudden change to this higher severity level (10 V/m) would cause problems for many manufacturers. Why this sudden change? And according to our	V The proposed severity level (10 V/m in general) should be kept, because of several reasons:

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		opinion, this is not necessary for regular ("domestic") applications. So, in conformity with D11, we suggest to prescribe, depending of the intended environment, 3 V/m for fields of general origin in a "residential, commercial and light industrial environment" and 10 V/m for fields of general origin in a "industrial environment and 10 V/m for fields caused by digital radio telephones. For details, please refer to OIML D 11, clause 12.	1) The great majority of TC9/SC1 members (24 of 26 members, and also CECIP) has voted in favor of the 2nd CD, including the proposal to test with 10 V/m. 2) CECIP itself, as an important representative of manufacturer's interests, wanted a uniform severity level of 10 V/m. This makes much sense, as many weighing instruments may be used in variable environmental conditions. 3) The change from 3 V/m to 10 V/m (at least for "residential, commercial and light industrial environment") is not really a "sudden" change. Many manufacturers voluntarily apply already for testing with the more severe EMC test conditions because of points 2 and 4. 4) The quality of "electromagnetic environment" for weighing instruments (and measuring instruments in general) has dramatically deteriorated since 1992 (when 3 V/m seemed to be sufficient) because of the increasing use of mobile phones and other sources of disturbance (transmitters, electric controls, energy saving light bulbs). Therefore, from the technical point of view, an adaptation of the test conditions is not only justified but overdue. 5) The OIML document D11 itself does not require the severity level 2 (3 V/m) as a mandatory solution in OIML recommendations. The wording in table 12.1.1/1 of D11 "preferred severity levels to OIML Recommendations" leaves the option to deviate in case of good reasons (which are given under points 1 to 4).
B.3.6	AU	See comment on B.3.5	V see our response to B.3.5 NL
B.3.6	NL	See comment on B.3.5	V see our response to B.3.5 NL
C.1.4	NL	As the wording is now the signal of the load cell shall be greater then the	P+

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		possible input range, resulting in wrong measurements or even damage to the indicator. Change the wording to "*The analogue output signal of the load cell(s) connected shall be within the range of the input signal the indicator is specified for.*" or equivalent wording.	
C.2.1	NL	This is a repetition of C.2, so delete this clause, or use the wording of C.2 with the title changed to " maximum range of applications"	P+ see changes in C.2 and C.2.1
C.3	NL	The requirements referenced to are referencing to the " old" R76-2 (referring to old R76-1), the references could already be updated to the correct clauses.	P+
C.3.3.2	NL	The worst case (replace with maximum range of application) condition is not the maximum excitation voltage but the minimum excitation voltage and has nothing to do with the maximum number of load cells. C.3.3.2.1 explains this.	P+ see new wording, but the worst case to be tested is the maximum excitation voltage because the excitation control is in this case the most critical.
C.3.3.2.2	NL	Delete " However, in most cases … is negligible." because it is not very complicated to simulate all 6 wires and not have the chance that the case where this is not true is not tested correctly. In some cases manufacturers work with a lower input impedance (for example explosion safe equipment) and compensate for that based on the sense measurement.	V
C.3.3.2.4	NL	Because the simulation is done in both directions (which is a better simulation) the variation applied should be + ½ ΔR_{Temp} and – ½ ΔR_{Temp} to simulate a temperature change of = / - 25 K.	V
D 4.2	AT	Delete extra space: "Type of module:…."	P+ changed also in C.4.2 and E.4.2
E. 4.2	AT	Summary of the examination: "… information…" instead of "… informations…"	P+ changed also in C.4.2
F	CH	Compatibility Forms: (5), (6b), (6c), (6d), (7), (8) Editorial: use the same symbol (small dots) for multiplication symbol in all the document	P+
F.2.4, F.2.6, F.2.7	CH	Editorial: use the same symbol (small dots) for multiplication symbol in all the document	P+
F.2.6	CN	"Where *DR* is not known, the condition $\boldsymbol{n_{LC} \geq Max / e_1}$ should be satisfied." **should be changed into:** **"**Where *DR* is not known, the condition $\boldsymbol{n_{LC} \geq Max_i / e_1}$ should be satisfied." ***Reasons:*** 3.3.1 Partial weighing range	P- The requirement Max/e_1 is necessary because a multi-interval instrument can be tared at any load this means being set to the smallest e (e_1). Therefore all requirements have to be met for e_1 for any load (up to Max). The calculated n (Max /e_1) must be greater than

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		Each partial range (index i = 1, 2 …**)** is defined by its maximum capacity ***Max*** $_i$ **,** "Where *DR* is not known, the condition $n_{LC} \geq 0.4 \bullet Max_r / e_1$ should be satisfied." **should be changed into:** "Where *DR* is not known, the condition $n_{LC} \geq 0.4 \bullet Max_i / e_1$ should be satisfied." ***Reasons:*** ***Max*** $_r$ should be ***Max*** $_i$ **.**	the real n_i in the weighing range i (Max_i / e_i). P- the explanation as above is valid also for multiple range instruments (but with the factor 0.4).
F.2.9	CN	"Rated output of a load cell" **should be changed into :**"Sensitivity of a load cell" ***Reasons:*** Rated output is called sensitivity in "Rated output of a load cell" **should be changed into :**"Sensitivity of a load cell" ***Reasons:*** Rated output is called sensitivity in 2.4.13 of OIML R60.	P+ changed throughout the document, but the old wording is also kept because this is used in many countries.
F.4 F.5	CN	Chapter F.6 provides typical examples of filled-in forms for compatibility checks. "(6c) Minimum dead load output return of the load cell and smallest verification scale interval e_1 of a multiple range WI n_{LC} **or** $Z = E_{max}/(2*DR)$ $\geq 0.4*Max_r/e_1$ **"** **should be changed into :** "(6c) Max. number of verification scale intervals and smallest verification scale interval e_1 of a multiple range WI $n_{LC} \geq 0.4*Max_r/e_1$ **"** ***Reasons:*** In OIML R60 ***"Z "*** is only used to describe multi-interval instrument and not used to describe multiple range instrument.	P- in R60 "Z" is used as an abbreviation to simplify later calculations (see note under T.2.9). This can also be used for multiple range instruments.
F.4 F.6.1 F.6.2	CN	Form:Check of Compatibility "Factor *Q* : $Q = (Max_r + DL + IZSR + NUD + T^+)/Max_r =$" **should be changed into :** "Factor *Q* : $Q = (Max + DL + IZSR + NUD + T^+)/Max =$" ***Reasons:*** F.1 Weighing instrument $Q = (Max + DL + IZSR + NUD + T^+) / Max$	P+
F.6.1	CN	"rated output" **should be changed into :**"sensitivity"	P+ see our response to F.2.9

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		Reasons: Rated output is called sensitivity in 2.4.13 of OIML R60. Road vehicle weigher with one measuring range (Example No 1) **delay the ratio "*Z* "** ratio E_{max} / (2∗*DR*) $Z = 3000$ Also the example No 1) : "(6c) Minimum dead load output return of the load cell and smallest verification scale interval e_1 of a multiple range WI n_{LC} **or** $Z = E_{max}/(2*DR)$ ≥ $0.4*Max_r/e_1$ **"** **should be changed into :** "(6c) Max. number of verification scale intervals and smallest verification scale interval e_1 of a multiple range WI $n_{LC} \geq 0.4*Max_r/e_1$ **"** ***Reasons:*** In OIML R60 ***"Z "*** is only used to describe multi-interval instrument . F.6.1 Road vehicle weigher with one measuring range describes single-interval instrument .	P- see our response to F.4 / F.5
F.6.2	CN	"rated output" **should be changed into :**"sensitivity" ***Reasons:*** Rated output is called sensitivity in 2.4.13 of OIML R60. **Add the ratio "*Y* ":** ratio E_{max} / v_{min} $Y = 10000$ **delay the ratio "*Z* "** ratio E_{max} / (2∗*DR*) $Z = 5000$ Also the example No 2) : "(6c) Minimum dead load output return of the load cell and smallest verification scale interval e_1 of a multiple range WI n_{LC} **or** $Z = E_{max}/(2*DR)$ ≥ $0.4*Max_r/e_1$ **"** **should be changed into :** "(6c) Max. number of verification scale intervals and smallest verification scale interval e_1 of a multiple range WI $n_{LC} \geq 0.4*Max_r/e_1$ **"**	P+ see our response to F.2.9 P- In this example Y is not given but v_{min}. (the result of the calculation stays the same, see note under T.2.9) We kept ratio "Z", see our response to F.4 / F.5 P- see our response to F.4 / F.5

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		Reasons: In OIML R60 ***"Z "*** is only used to describe multi-interval instrument . F.6.2 Industrial scale with three measuring ranges describes multiple range instrument .	
Annex G	NL	Delete preliminary note in final draft.	P- See our response to 5.5
G.2.2.2	NL	See comment on 5.5.2.2 a. 2nd par, last sentence	V

OIML TC9/SC1, Revision R76

Synopsis of Comments on the 2nd Committee Draft (21 October 2005) and Secretariat's Responses

Secretariat's response to A.5.3.1. JP , NL:

Temperature tests (Dry heat, cold): OIML D11 (10.1) vs. OIML R76-1 (A.5.3.1)

Although the wording in R76-1 indeed differs from the wording in D11, the resulting test conditions are almost identical as is explained in the following.

OIML D11 (10.1) differentiates between a "dry heat" test (30 °C ... 85 °C) and a "cold" test (from +5 °C down to -40 °C). Humidity requirements for the "dry heat" test are:

- the absolute humidity shall not exceed 20 g/m³
- for tests with temperatures < 35 °C the relative humidity shall not exceed 50 %

As normally nobody knows about the functional relationship between temperature, relative humidity and absolute humidity, we found by the tables below that 20 g/m³ and 50% r.h., respectively, mean the following:

temperature in °C	23,4	30,0	35,0	40,0
rel. humidity in %	100	65,6	50,3	38,9
abs. humidity in g/m³	20	20	20	20

(these values are valid for an air pressure of 1013,25 hPa)

temperature in °C	25	30	35	40
rel. humidity in %	50	50	50	50
abs. humidity in g/m³	11,6	15,2	19,9	25,7

(these values are valid for an air pressure of 1013,25 hPa)

Thus, the only difference between D11 and R76 would occur at a specified high temperature of 40 °C, where D11 would require a relative humidity of max. 39% (= 20 g/m^3), whereas R76 would allow max. 50 % (= 25,7 g/m^3). We consider that difference not really significant, the more if you take into consideration that the measurement uncertainty of relative humidity instruments is often in the order of 5% to 10% r. h. We are convinced that up to now nobody really took care of the 20 g/m^3 requirement (which is in the present R76) because nobody really knew about the functional relationship between temperature, relative humidity and absolute humidity (at least we did not). Thus, we find it justified and even better to put a general 50% requirement into R76, because that can be easily measured and observed.

For the "cold" test there are no particular requirements concerning the humidity.

For the "cold test" there is only one additional requirement saying that the instrument has to be switched off before the temperature is raised, but this cannot be adopted because of the test "temperature effect on the no-load indication" (R76-1, A.5.3.2).

In all other respects the D11 document has been very carefully considered and the D11 requirements have been taken over as far as possible into the revised R76. Therefore, we think, that a further modification of the 2CD of R76 with respect to D11 is not necessary.